HAVERHILL RETIREMENT SYSTEM

ACTUARIAL VALUATION
as of
January 1, 2024

KMS Actuaries, LLC
52 Hunt Road
Kingston, NH 03848

October, 2024

A C T U A R I E S

L L C

October 21, 2024

Haverhill Retirement Board
4 Summer Street
Room 303
Haverhill, MA 01830

Dear Board Members:

We are pleased to present the enclosed report providing the results of our actuarial valuation of the Haverhill Retirement System as of January 1, 2024. Our valuation was performed in accordance with the provisions contained in Chapter 32 of the Massachusetts General Laws, “M.G.L.”, as of January 1, 2024. Disclosures under GASB Statement No. 67, Financial Reporting for Pension Plans (GASB 67) and GASB Statement No. 68, Accounting and Financial Reporting for Pensions (GASB 68) are provided in a separate report.

The principal results of our valuation are summarized in Section 2. The Summary of Plan Provisions and Actuarial Assumptions and Methods are shown in Sections 5 and 6, respectively. Section 7 summarizes the demographic profile of active members, retired plan members and beneficiaries and disabled plan members. Asset information and actuarial liabilities are presented in Section 2. The development of the required appropriations pursuant to Chapter 32 of the M.G.L. is shown in Section 3, including a 30-year forecast of the required appropriations and projected cash flows. Section 4 includes a summary of valuation information for PERAC as well as information relating to the primary risks to the System and an assessment of those risks.

This valuation is based upon member data provided by the Haverhill Retirement Board and asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Retirement Board. Although we did not audit the data used in the valuation, we believe that the information is complete and reliable.

Liabilities presented in this report are based on a long-term investment return rate assumption of 7%, net of investment expense, compounded annually.

This report was completed in accordance with generally accepted actuarial standards and procedures, and conforms to the Code of Professional Conduct of the American Academy of Actuaries. The actuarial assumptions used in the determination of costs are reasonably related to the experience of the System and to reasonable expectations, and represent our best estimate of anticipated long-term experience under the System.

Future actuarial valuation results may differ significantly from the current results presented in this report. Examples of potential sources of volatility include plan experience differing from that anticipated by the economic or demographic assumptions, the effect of new entrants, changes in economic or demographic assumptions, the effect of law changes and the delayed effect of smoothing techniques. The potential range of future measurements was not assessed as it was outside the scope of the project.

Our valuation follows generally accepted actuarial methods and we perform such tests as we consider necessary to assure the accuracy of the results. The amounts presented in this report have been appropriately determined according to the actuarial assumptions and methods stated herein.

This report is intended for the sole use of the Haverhill Retirement Board and may only be provided to other parties in its entirety, unless expressly authorized by KMS Actuaries. Further, it is intended to provide information to comply with the stated purpose of the report. It may not be appropriate for other purposes.

KMS Actuaries is completely independent of the Haverhill Retirement System and any of its officers or key personnel. None of the actuaries signing this report or anyone closely associated with them has a relationship with the Haverhill Retirement System, other than as consulting actuary for this assignment, that would impair our independence.

The undersigned credentialed actuaries agree that the analysis, assumptions and results are overall reasonable. They are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinion contained herein. They are available to answer any questions with regard to this report.

Respectfully submitted,

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SECTION 1 - EXECUTIVE SUMMARY

Background

We have completed the Actuarial Valuation of the Haverhill Retirement System as of January 1, 2024. This valuation is based upon census data provided by the Retirement Board and asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Haverhill Retirement Board. Information for the prior valuation completed as of January 1, 2022 was obtained from the valuation report prepared by KMS Actuaries.

Primary Purpose

This report was prepared for the Retirement Board for the purposes described below:

- Measure and disclose the financial condition of the System as of the valuation date,
- Indicate trends, both historical and prospective, in the financial progress of the System,
- Identify, assess and disclose material risks of the System and
- Develop System appropriations.

Massachusetts General Laws

The valuation was prepared in accordance with Chapter 32 of the Massachusetts General Laws ("M.G.L."). The results are based on the active, inactive and retired members and beneficiaries as of December 31, 2023, the assets as of December 31, 2023 and assumptions regarding investment returns, salary increases, mortality, turnover, disability and retirement.

The valuation does not take into consideration:

- Changes in the law after the valuation date,
- Transfers between retirement systems pursuant to Section 3(8)(c) of Chapter 32,
- State-mandated benefits and
- Cost-of-living increases granted to members in pay status between 1982 and 1997.

GASB Statement Numbers 67 and 68

In June 2012, the GASB approved two related Statements that significantly changed the way pension plans and governments account and report pension liabilities. Effective for plans with fiscal years beginning after June 15, 2013, GASB Statement No. 67, Financial Reporting for Pension Plans, replaced the requirements of Statement No. 25 and effective for employers with fiscal years beginning after June 15, 2014, GASB Statement No. 68, Accounting and Financial Reporting for Pensions, replaced the requirements of Statement No. 27.

The pension standards reflect changes from those previously in place regarding how governments calculate total pension liability and pension expense. Further, the standards contain requirements for disclosing information in the notes to financial statements and presenting required supplementary information following the notes.

The required disclosures and notes under GASB Statement Number 67 and 68 for the fiscal year ending December 31, 2023 are provided in a separate report.

Assets

This valuation is based upon asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Haverhill Retirement Board. The market value of assets decreased from $294,513,578 as of December 31, 2021 to $288,611,905 as of December 31, 2023. During the plan years ended 2022 and 2023, the market value rates of return were -9.75% and 10.53%, respectively.

The actuarial value of assets increased from $265,062,220 as of January 1, 2022 to $299,876,129 as of January 1, 2024. During the plan years ended 2022 and 2023, the rates of return on the actuarial value of assets were 6.02% and 7.15%, respectively.

Changes Since the Last Valuation

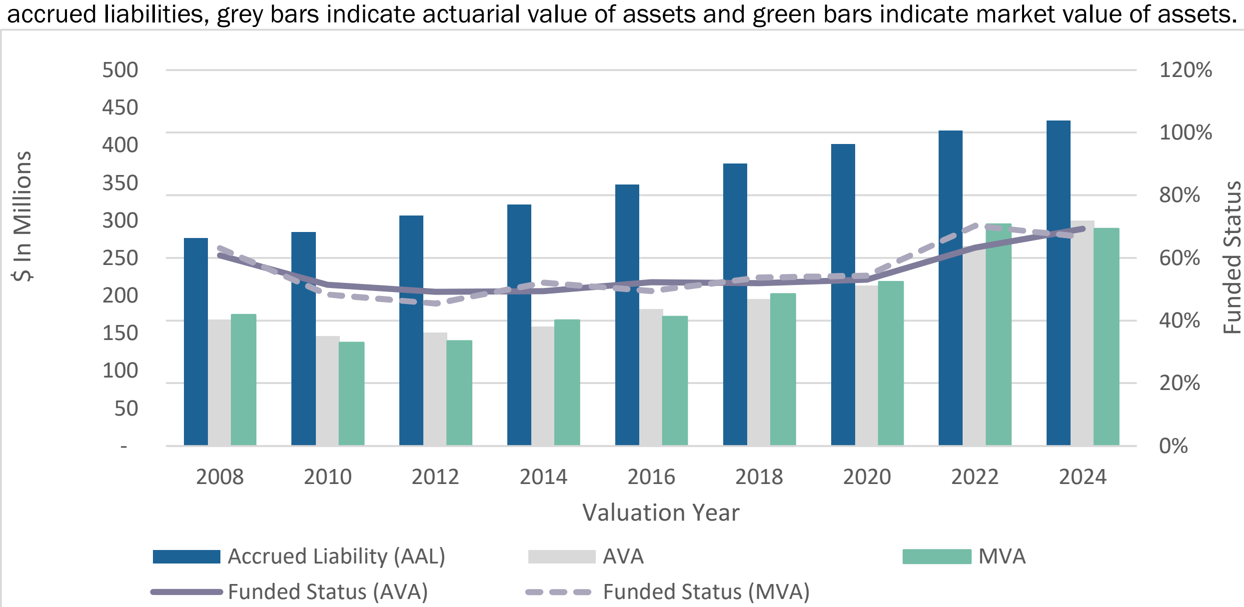
During the two years since the last valuation, the total unfunded actuarial accrued liability of the System was expected to decrease from $153,840,128 as of January 1, 2022 to $129,431,168 as of January 1, 2024, for a total decrease of $24,408,960. The actual unfunded actuarial accrued liability, before any assumption or plan changes, was $132,466,006, resulting in an actuarial loss of $3,034,838. The actuarial loss was primarily due to an asset loss of approximately $2,349,000 and a demographic experience loss of approximately $686,000. The details of the gain and loss analysis are provided in Section 2, Actuarial Experience.

Change in Funded Status

The System's funded status, which is the Actuarial Value of Assets divided by the Actuarial Liabilities, increased from 63.3% as of January 1, 2022 to 69.4% as of January 1, 2024.

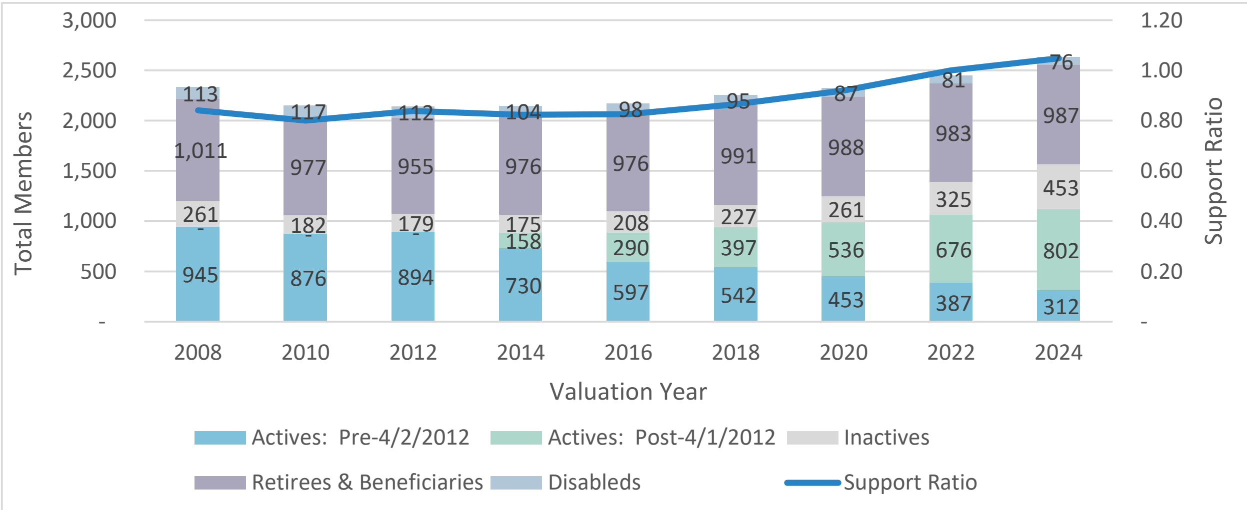
Historical Trends

Below are the accrued liabilities, asset values (actuarial and market) and funded status for each of the last 9 valuations. The purple solid line reflects the funded status on an actuarial value of assets (AVA) basis and the purple dotted line reflects the funded status on a market value (MVA) basis. Blue bars indicate actuarial accrued liabilities, grey bars indicate actuarial value of assets and green bars indicate market value of assets.



Historical Trends (continued)

Below are the membership counts for each of the last 9 valuations. The blue line reflects the support ratio, which is the number of active members divided by the number of retirees.



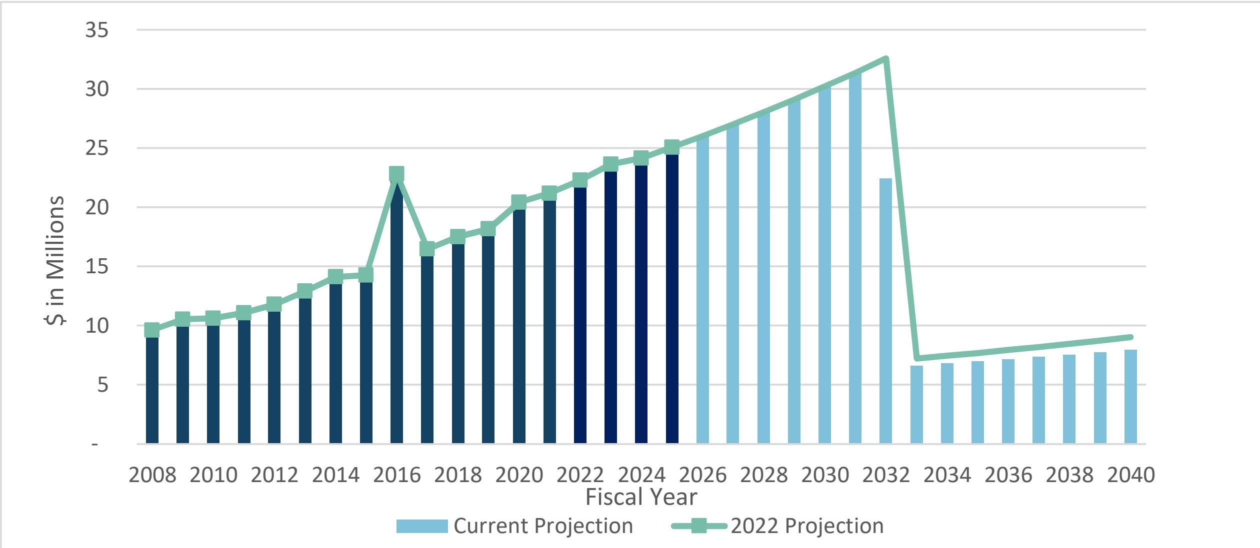
Appropriations

The funding appropriation for each year is computed as the sum of the normal cost, net 3(8)(c) transfers and an amortization payment to pay off the Unfunded Actuarial Liability, adjusted for annual payments of the appropriation made July 1. The appropriation calculated as of the January 1, 2024 valuation is $23,582,357, and is made up of a normal cost payment of $4,725,769, net 3(8)(c) transfers of $604,210, and an amortization payment of $18,252,378. The amortization method is an increasing amortization of the unfunded actuarial accrued liability at 4% over 8 years and is expected to fully pay the unfunded actuarial accrued liability by the year 2032. The development of the appropriation as of January 1, 2024 is presented in Section 3, Annual Appropriations.

For fiscal year 2025, we show the actual appropriation developed under the previous funding schedule and reported on the PERAC "Required Fiscal Year 2025 Appropriation" letter dated November 21, 2023 of $25,078,951. For fiscal year 2026, we developed an annual appropriation of $26,032,044, which is made up of a normal cost of $4,916,004, net 3(8)(c) transfers of $625,000 and payment toward the unfunded actuarial accrued liability of $20,491,040. The unfunded actuarial accrued liability is expected to be fully paid by 2032. The current funding schedule is shown in Section 3, Exhibit 3.1.

Appropriations (continued)

The chart below shows the historical (navy bars) and projected (blue bars) annual appropriations compared to the projected amounts shown in the prior valuation and funding schedule (green line).



Plan Provisions

All Plan provisions remained the same from the prior valuation. The Plan provisions used in this valuation are summarized in Section 5, Summary of Plan Provisions.

Actuarial Assumptions and Methods

The administrative expense assumption was increased from $500,000 to $600,000 in this valuation. All other Actuarial Assumptions and Methods used in this valuation remained the same from the prior valuation. The Actuarial Assumptions and Methods utilized in this valuation are detailed in Section 6, Actuarial Assumptions and Methods.

Census Data

As of January 1, 2024, there are 1,114 active members who may be eligible for benefits in the future, 987 retirees and beneficiaries, 453 inactives and 76 disabled retirees. Summaries of the active, retired and disabled employees are included in Section 7, Plan Member Information. We have examined the data for reasonableness and consistency in accordance with ASOP 23.

SECTION 1 - EXECUTIVE SUMMARY

A summary of principal valuation results from the current valuation and the prior valuation follows.

Valuation Date	January 1, 2024	January 1, 2022	% Change
Census Data			
Active Members	1,114	1,063	4.8%
Valuation Salary	$59,417,121	$53,668,444	10.7%
Average Salary	$53,337	$50,488	5.6%
Retired Members and Beneficiaries	987	983	0.4%
Total Annual Retirement Allowance	$26,155,789	$24,755,706	5.7%
Average Annual Retirement Allowance	$26,500	$25,184	5.2%
Disabled Members	76	81	(6.2%)
Total Annual Retirement Allowance	$2,961,314	$3,077,121	(3.8%)
Average Annual Retirement Allowance	$38,965	$37,989	2.6%
Inactive Members	453	325	39.4%
Annuity Savings Fund	$4,975,898	$3,992,671	24.6%
Funded Status			
Actuarial Accrued Liability (AAL)	$432,342,135	$418,902,348	3.2%
Market Value of Assets (MVA)	$288,611,905	$294,513,578	(2.0%)
Unfunded Accrued Liability on MVA	$143,730,230	$124,388,770	15.5%
Funded Status on MVA	66.8%	70.3%	(5.0%)
Actuarial Value of Assets (AVA)	$299,876,129	$265,062,220	13.1%
Unfunded Accrued Liability on AVA	$132,466,006	$153,840,128	(13.9%)
Funded Status on AVA	69.4%	63.3%	9.6%
Appropriations			
Fiscal Year 2024	N/A	$24,161,700	N/A
Fiscal Year 2025	$25,078,951	$25,078,951	0.0%
Fiscal Year 2026	$26,032,044	$26,032,044	0.0%
Fiscal Year 2027	$27,022,383	$27,022,383	0.0%

SECTION 2 - PRINCIPAL VALUATION RESULTS

Market Value of Assets

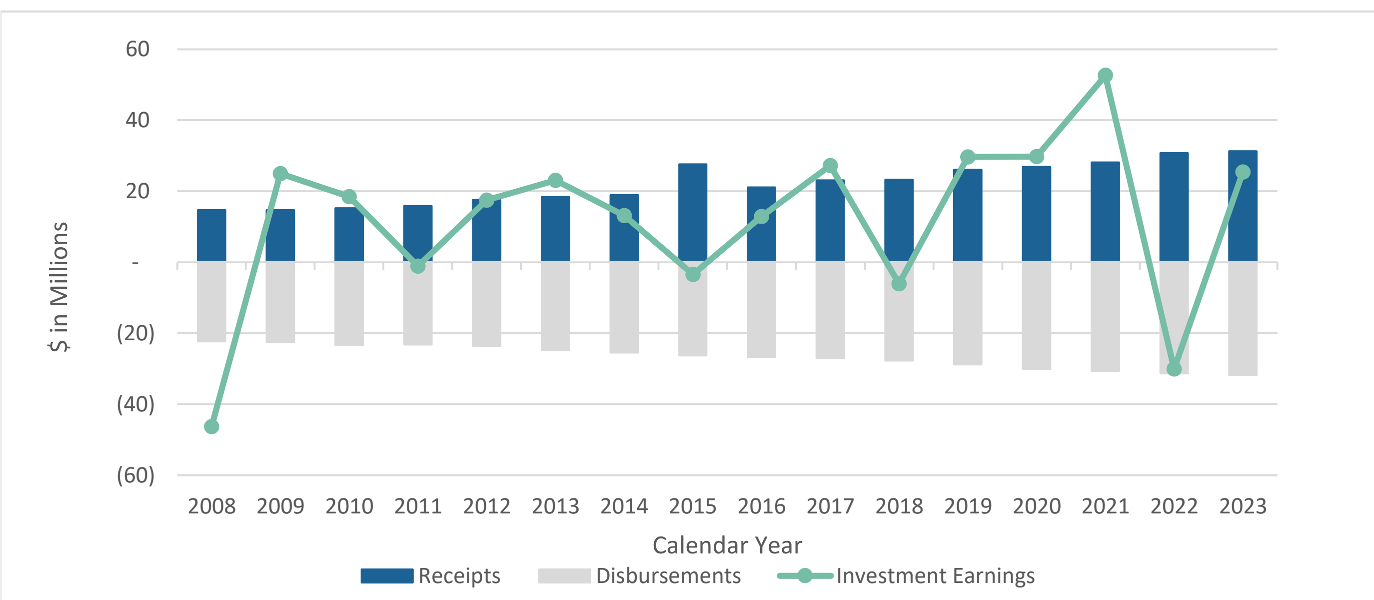
Asset information is reported annually to the Public Employee Retirement Administration Commission by the Haverhill Retirement Board. The Market Value of Assets for the three most recent calendar years are as follows:

Calendar Year	2023	2022	2021
Trust Fund Composition at Year-End			
Cash	$7,233,578	$1,562,202	$4,769,765
Short-Term Investments	0	0	0
Fixed Income Securities	0	0	0
Equities	34,664,778	21,779,200	28,896,849
Pooled Short Term Funds	0	0	0
Pooled Domestic Equity Funds	0	0	0
Pooled International Equity Funds	19,606,792	5,081,727	0
Pooled Global Equity Funds	0	0	0
Pooled Domestic Fixed Income Funds	25,915,733	16,594,843	8,629,919
Pooled International Fixed Income Funds	0	0	0
Pooled Global Fixed Income Funds	0	0	0
Pooled Alternative Investments	22,611,844	23,079,370	25,065,673
Pooled Real Estate Funds	24,337,000	22,965,113	18,245,693
Pooled Domestic Balanced Funds	0	0	0
Pooled International Balanced Funds	0	0	0
Hedge Funds	22,163,724	9,142,445	0
PRIT Cash	5,163	505,463	600,099
PRIT Fund	132,048,666	163,123,810	208,383,122
Interest Due & Accrued	15,497	3,183	0
Prepaid Expenses	0	0	0
Accounts Receivable	185,119	33,738	143,074
Land	0	0	0
Buildings	0	0	0
Accumulated Depreciation - Buildings	0	0	0
Accounts Payable	(175,989)	(89,578)	(220,616)
Total Market Value of Assets	**$288,611,905**	**$263,781,516**	**$294,513,578**

Market Value of Assets

Calendar Year	2023	2022	2021
Funds			
Annuity Savings Fund	$50,188,274	$48,842,765	$47,734,829
Annuity Reserve Fund	10,735,962	11,494,634	12,257,337
Special Military Service Fund	12,811	12,982	12,969
Pension Fund	9,585,172	9,681,416	10,014,628
Expense Fund	0	0	0
Pension Reserve Fund	218,089,686	193,749,719	224,493,815
Total Market Value of Assets	$288,611,905	$263,781,516	$294,513,578
Asset Activity			
Market Value as of Beginning of Year	$263,781,516	$294,513,578	$244,409,110
Contributions and Receipts	31,268,255	30,752,342	28,106,688
Benefit Payments and Expenses	(31,802,950)	(31,376,896)	(30,612,191)
Investment Return	25,365,084	(30,107,508)	52,609,971
Total Market Value of Assets	$288,611,905	$263,781,516	$294,513,578
Rate of Return	10.53%	-9.75%	22.53%

Below are the receipts and disbursements during the last 16 years. The green line reflects investment earnings, which vacillate as investment markets fluctuate. Blue bars indicate contributions, from employees and employers, and grey bars show benefit payments and administrative expenses.



Actuarial Value of Assets

The Actuarial Value of Assets is the market value of assets as of the valuation date adjusted to phase in investment gains and losses over a 4-year period, further constrained to be within 20% (10% prior to the 2024 valuation) of the market value of assets. Investment gains and losses are the excess or deficiency of the expected returns over the actual returns.

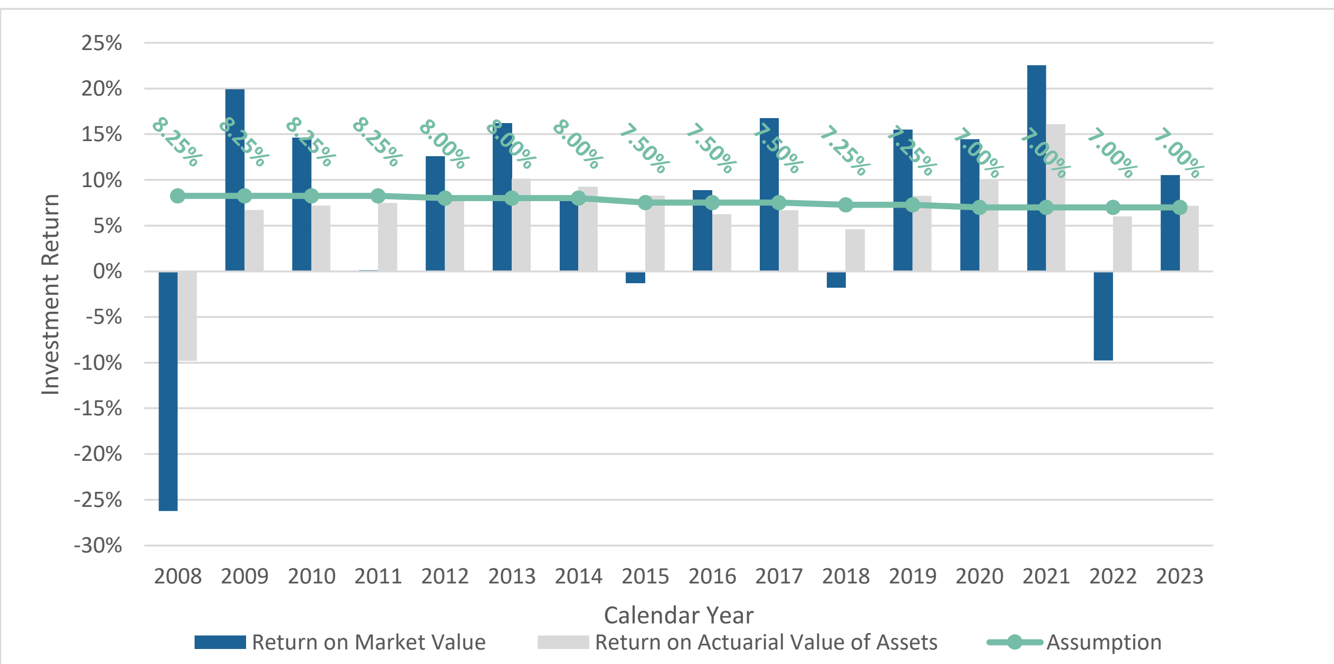
Valuation Date	January 1, 2024	January 1, 2023	January 1, 2022
1. Expected Market Value of Assets			
a. Market Value of Assets as of prior January 1	$263,781,516	$294,513,578	$244,409,110
b. Prior Year Contributions and Receipts	31,268,255	30,752,342	28,106,688
c. Prior Year Benefit Payments and Expenses	(31,802,950)	(31,376,896)	(30,612,191)
d. Expected Investment Return Rate	7.00%	7.00%	7.00%
e. Expected Investment Return	18,445,992	20,594,091	17,020,945
f. Expected Market Value of Assets	$281,692,813	$314,483,115	$258,924,552
2. Prior Year Gain/(Loss)			
a. Market Value of Assets as of January 1	$288,611,905	$263,781,516	$294,513,578
b. Expected Market Value of Assets	281,692,813	314,483,115	258,924,552
c. Prior Year Gain /(Loss)	$6,919,092	($50,701,599)	$35,589,026

3. Phase-In of Asset Gains and Losses					
	Calendar Year	Gain / (Loss)	Unrecognized Gain / (Loss)	Unrecognized Gain / (Loss)	Unrecognized Gain / (Loss)
a.	2023	$6,919,092	$5,189,319	$0	$0
b.	2022	(50,701,599)	(25,350,800)	(38,026,199)	0
c.	2021	35,589,026	8,897,257	17,794,513	26,691,770
d.	2020	14,557,994	0	3,639,499	7,278,997
e.	2019	15,905,783	0	0	3,976,446
f.	Total Deferred Gains/(Losses)		($11,264,224)	($16,592,187)	$37,947,213

Actuarial Value of Assets

Valuation Date	January 1, 2024	January 1, 2023	January 1, 2022
4. Actuarial Value of Assets			
a. Market Value of Assets	$288,611,905	$263,781,516	$294,513,578
b. Deferred Gains/(Losses)	(11,264,224)	(16,592,187)	37,947,213
c. Market Value of Assets Less Deferred Gains/(Losses)	$299,876,129	$280,373,703	$256,566,365
d. 80% (90% prior to 2024) of Market Value of Assets	230,889,524	237,403,364	265,062,220
e. 120% (110% prior to 2024) of Market Value of Assets	346,334,286	290,159,668	323,964,936
f. Actuarial Value of Assets, c., but not less than d. and not greater than e.	$299,876,129	$280,373,703	$265,062,220
g. Ratio of Actuarial Value of Assets to Market Value of Assets	103.9%	106.3%	90.0%
5. Rate of Return on Actuarial Value of Assets for Prior Calendar Year	7.15%	6.02%	16.08%

Below are the investment returns during the last 16 years. The green line reflects the investment return actuarial assumption. Blue bars indicate investment return rates on market value of assets, and grey bars show investment return rates on actuarial value of assets.



Actuarial Liabilities

The **Actuarial Present Value of Future Benefits** is the present value of the cost to finance all benefits payable in the future, discounted to reflect the probability of payment and the time value of money. Below is the Actuarial Present Value of Future Benefits from the current valuation and the prior valuation:

Valuation Date	January 1, 2024	January 1, 2022
Actives	$232,592,832	$224,983,639
Retired Members and Beneficiaries	257,799,457	245,229,771
Disabled Members	31,072,253	31,919,839
Inactive Members	4,975,898	3,992,671
Total Present Value of Future Benefits	**$526,440,440**	**$506,125,920**

The **Actuarial Accrued Liability** is the portion of the Actuarial Present Value of Future Benefits which is allocated to all periods prior to a valuation year and therefore is not provided for by future Normal Costs. Below is the Actuarial Accrued Liability from the current valuation and the prior valuation:

Valuation Date	January 1, 2024	January 1, 2022
Actives	$138,494,527	$137,760,067
Retired Members and Beneficiaries	257,799,457	245,229,771
Disabled Members	31,072,253	31,919,839
Inactive Members	4,975,898	3,992,671
Total Actuarial Accrued Liability	**$432,342,135**	**$418,902,348**

The **Unfunded Actuarial Accrued Liability** is the difference between the Actuarial Accrued Liability and the Actuarial Value of Assets as of the valuation date. The **Funded Status** is the Actuarial Value of Assets divided by the Actuarial Accrued Liability and is a point-in-time measurement of the amount of assets set aside to cover actuarial accrued liabilities. Below is the Unfunded Actuarial Accrued Liability and Funded Status from the current valuation and the prior valuation:

Valuation Date		January 1, 2024	January 1, 2022
Unfunded Actuarial Accrued Liability			
a.	Actuarial Accrued Liability	$432,342,135	$418,902,348
b.	Actuarial Value of Assets	299,876,129	265,062,220
c.	Unfunded Actuarial Accrued Liability (a. - b.)	$132,466,006	$153,840,128
d.	Funded Status (b. divided by a.)	69.4%	63.3%

Actuarial Liabilities

The **Normal Cost** is the portion of the Actuarial Present Value of Future Benefits which is allocated to a valuation year. Only active employees who have not reached Normal Retirement Age incur a Normal Cost. Below is the Normal Cost from the current valuation and the prior valuation:

Valuation Date	January 1, 2024	January 1, 2022
Total Normal Cost	$9,689,594	$9,024,303
As of Percentage of Salary	16.3%	16.8%
Employee Normal Cost	$5,543,867	$4,983,761
As of Percentage of Salary	9.3%	9.3%
Administrative Expenses	$580,042	$483,368
As a Percentage of Salary	1.0%	0.9%
Net Employer Normal Cost	$4,725,769	$4,523,910
As a Percentage of Salary	8.0%	8.4%

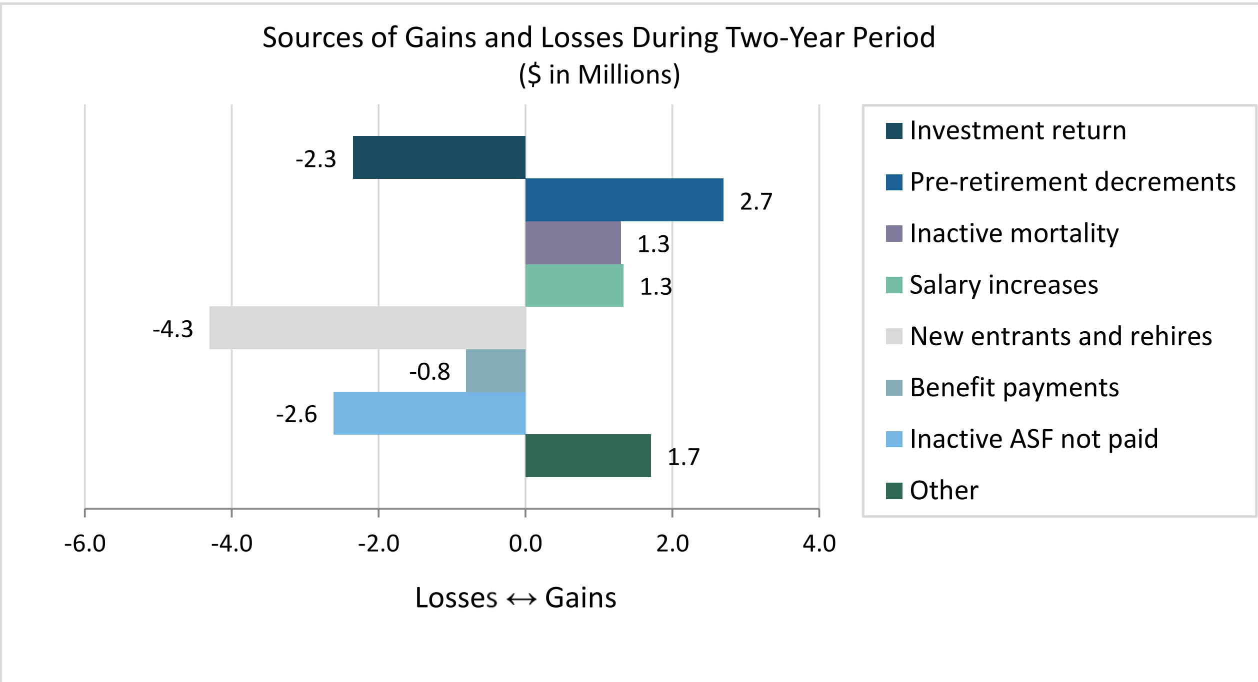
Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding mortality, retirement, disability and withdrawal rates as well as salary increases and investment returns. A comparison of the results of the current valuation and the prior valuation is made to determine how closely actual experience relates to expected. During the two years since the last valuation, the total unfunded actuarial accrued liability of the System was expected to decrease by $24,408,960. Below is the development of the Actuarial Loss for the current 2-year period:

Calendar Year Ending		December 31, 2023	December 31, 2022
Expected Unfunded Actuarial Accrued Liability			
1.	Unfunded Actuarial Accrued Liability, Beginning of Year	$142,436,267	$153,840,128
2.	Normal Cost, Beginning of Year	8,772,903	9,024,303
3.	Total Contributions	31,268,255	30,752,342
4.	Interest (full year on 1. and 2., one-half year on 3.)	9,490,253	10,324,178
5.	Expected Unfunded Actuarial Accrued Liability	$129,431,168	$142,436,267
6.	Unfunded Actuarial Accrued Liability (before changes)	132,466,006	
7.	(Gain)/Loss (6. - 5.)	$3,034,838	
Asset Gain/(Loss)			
1.	Actuarial Value of Assets, Beginning of Year	$280,373,703	$265,062,220
2.	Contributions and Receipts	31,268,255	30,752,342
3.	Benefit Payments and Expenses	(31,802,950)	(31,376,896)
4.	Assumed Rate of Return (prior valuation)	7.00%	7.00%
5.	Expected Return	19,607,445	18,532,496
6.	Actuarial Value of Assets, End of Year	$299,876,129	$280,373,703
7.	Actual Return	20,037,121	15,936,037
8.	Actual Rate of Return	7.15%	6.02%
9.	Asset Gain/(Loss) (7. - 5.)	429,676	(2,596,459)
10.	Total Asset Gain/(Loss), 2-Year Period	($2,348,535)	

Actuarial Experience

Below are the various sources of gains and losses over the 2-year period. The asset loss during the period was $2,348,535, and the total demographic loss during the period was $686,303, which totals to an overall loss of $3,034,838.



Unfunded Actuarial Accrued Liability

1.	Changes due to:	
	a. Asset Loss	$2,348,535
	b. Demographic Experience Loss	686,303
	c. Total Loss Prior to Changes	3,034,838
	d. Plan Change	-
	e. Assumption Change	-
	f. Total Increase (including changes)	3,034,838
2.	Unfunded Actuarial Accrued Liability, End of Year	$132,466,006

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Annual Appropriations

The Annual Appropriation is determined in accordance with the requirements set forth in Sections 22D and 22F of Chapter 32 of the Massachusetts General Laws ("M.G.L."). The appropriation is comprised of the annual employer normal cost and amortization payments to pay the unfunded actuarial accrued liability. Below are the details of the annual appropriations for the current and prior valuations, adjusted for annual payments made July 1. The appropriations shown are based on the results of the valuation and do not account for any adjustments made to appropriations in the selected funding schedule.

	Valuation Date	January 1, 2024	January 1, 2022
1.	Early Retirement Incentive Plan (2002)		
	Fully Funded Year	2032	2032
	Investment Return Rate	7.00%	7.00%
	Balance as of Valuation Date	$3,642,294	$4,096,323
	Amortization Amount	$501,869	$464,006
	Increasing Rate	4.00%	4.00%
	Remaining Payment Period from Valuation Date	8	10
2.	Early Retirement Incentive Plan (2003)		
	Fully Funded Year	2032	2032
	Investment Return Rate	7.00%	7.00%
	Balance as of Valuation Date	$2,719,299	$3,058,272
	Amortization Amount	$374,690	$346,422
	Increasing Rate	4.00%	4.00%
	Remaining Payment Period from Valuation Date	8	10
3.	Unfunded Actuarial Accrued Liability		
	Fully Funded Year	2032	2032
	Investment Return Rate	7.00%	7.00%
	Balance as of Valuation Date	$126,104,413	$146,685,533
	Amortization Amount	$17,375,819	$16,615,616
	Increasing Rate	4.00%	4.00%
	Remaining Payment Period from Valuation Date	8	10
4.	Total Amortization Payments	$18,252,378	$17,426,044
5.	Normal Cost	$4,725,769	$4,523,910
6.	Net 3(8)(c) Transfers	$604,210	$604,210
7.	Total Appropriation as of January 1	$23,582,357	$22,554,164
8.	**Adjusted for Annual Payments as of July 1**	**$24,393,780**	**$23,330,209**

Exhibit 3.1 - 30-Year Forecast of Annual Appropriations

Fiscal Year Ending	Employer Normal Cost	Amortization Payment of UAL	Amortization Payment of ERI 2002	Amortization Payment of ERI 2003	Net 3(8)(c) Transfers	Total Employer Cost	Increase over Prior Year	Unfunded Actuarial Accrued Liability
2025	$4,888,373	$18,658,859	$519,137	$387,582	$625,000	$25,078,951		$132,466,006
2026	4,916,004	19,548,052	539,902	403,086	625,000	26,032,044	3.80%	121,499,836
2027	5,064,097	20,352,579	561,498	419,209	625,000	27,022,383	3.80%	108,808,727
2028	5,199,626	21,206,867	583,959	435,977	625,000	28,051,429	3.81%	94,358,016
2029	5,357,438	22,077,526	607,316	453,416	625,000	29,120,696	3.81%	77,971,493
2030	5,499,156	23,004,444	631,610	471,554	625,000	30,231,764	3.82%	59,495,098
2031	5,660,198	23,953,777	656,874	490,415	625,000	31,386,264	3.82%	38,722,650
2032	5,814,097	14,807,551	683,148	510,031	625,000	22,439,827	-28.50%	15,468,490
2033	5,973,910	-	-	-	625,000	6,598,910	-70.59%	-
2034	6,154,679	-	-	-	625,000	6,779,679	2.74%	-
2035	6,349,966	-	-	-	625,000	6,974,966	2.88%	-
2036	6,509,932	-	-	-	625,000	7,134,932	2.29%	-
2037	6,701,635	-	-	-	625,000	7,326,635	2.69%	-
2038	6,901,308	-	-	-	625,000	7,526,308	2.73%	-
2039	7,104,558	-	-	-	625,000	7,729,558	2.70%	-
2040	7,322,996	-	-	-	625,000	7,947,996	2.83%	-
2041	7,547,221	-	-	-	625,000	8,172,221	2.82%	-
2042	7,788,157	-	-	-	625,000	8,413,157	2.95%	-
2043	8,019,790	-	-	-	625,000	8,644,790	2.75%	-
2044	8,273,131	-	-	-	625,000	8,898,131	2.93%	-
2045	8,551,944	-	-	-	625,000	9,176,944	3.13%	-
2046	8,833,255	-	-	-	625,000	9,458,255	3.07%	-
2047	9,098,056	-	-	-	625,000	9,723,056	2.80%	-
2048	9,399,183	-	-	-	625,000	10,024,183	3.10%	-
2049	9,714,049	-	-	-	625,000	10,339,049	3.14%	-
2050	10,039,385	-	-	-	625,000	10,664,385	3.15%	-
2051	10,384,892	-	-	-	625,000	11,009,892	3.24%	-
2052	10,734,132	-	-	-	625,000	11,359,132	3.17%	-
2053	11,113,487	-	-	-	625,000	11,738,487	3.34%	-
2054	11,513,649	-	-	-	625,000	12,138,649	3.41%	-

Exhibit 3.2 - 30-Year Forecast of Cash Flow

Calendar Year	Market Value of Assets, BOY	Benefit Payments	Employee Contributions	Employer Contributions	Investment Return	Market Value of Assets, EOY
2024	$288,611,905	$35,791,243	$5,543,867	$24,244,737	$21,035,342	$303,644,608
2025	303,644,608	31,315,653	5,876,593	25,166,127	22,332,065	325,703,740
2026	325,703,740	31,998,408	6,105,443	26,123,524	23,935,345	349,869,644
2027	349,869,644	32,689,825	6,359,461	27,118,340	25,690,177	376,347,797
2028	376,347,797	33,355,440	6,605,413	28,152,039	27,609,927	405,359,736
2029	405,359,736	33,953,268	6,880,872	29,226,150	29,714,309	437,227,799
2030	437,227,799	34,519,429	7,152,086	30,342,247	32,022,369	472,225,072
2031	472,225,072	35,128,206	7,445,147	21,693,399	33,865,966	500,101,378
2032	500,101,378	35,593,413	7,747,954	6,379,407	34,750,242	513,385,568
2033	513,385,568	36,065,726	8,046,508	6,554,163	35,696,736	527,617,249
2034	527,617,249	36,590,070	8,347,594	6,742,953	36,708,893	542,826,619
2035	542,826,619	38,236,623	8,699,970	6,897,599	37,751,411	557,938,976
2036	557,938,976	39,957,271	9,039,412	7,082,925	38,785,787	572,889,829
2037	572,889,829	41,755,348	9,389,515	7,275,956	39,807,434	587,607,386
2038	587,607,386	43,634,339	9,755,170	7,472,445	40,811,248	602,011,910
2039	602,011,910	45,597,884	10,125,817	7,683,617	41,791,568	616,015,028
2040	616,015,028	47,649,789	10,511,233	7,900,384	42,742,123	629,518,979
2041	629,518,979	49,794,030	10,901,570	8,133,306	43,655,979	642,415,804
2042	642,415,804	52,034,761	11,322,715	8,357,234	44,525,486	654,586,478
2043	654,586,478	54,376,325	11,745,452	8,602,148	45,342,214	665,899,967
2044	665,899,967	56,823,260	12,166,932	8,871,687	46,096,887	676,212,213
2045	676,212,213	59,380,307	12,610,183	9,143,640	46,779,312	685,365,041
2046	685,365,041	62,052,421	13,094,427	9,399,632	47,378,302	693,184,981
2047	693,184,981	64,844,780	13,569,461	9,690,743	47,881,596	699,482,001
2048	699,482,001	67,762,795	14,058,029	9,995,135	48,275,764	704,048,134
2049	704,048,134	70,812,121	14,564,227	10,309,650	48,546,117	706,656,007
2050	706,656,007	73,998,666	15,079,651	10,643,664	48,676,599	707,057,255
2051	707,057,255	77,328,606	15,621,197	10,981,287	48,649,681	704,980,814
2052	704,980,814	80,808,393	16,164,400	11,348,024	48,446,233	700,131,078
2053	700,131,078	84,444,771	16,719,336	11,734,875	48,045,403	692,185,921

Forecast Notes

Exhibit 3.1:

- The Total Normal Cost is assumed to increase 3.5% per year and the Employee Normal Cost is assumed to increase at a rate that reflects a total payroll increase of 3.5% per year and incorporates new entrants sufficient to maintain constant active membership.

- The Unfunded Actuarial Accrued Liability ("UAL") is computed as of January 1 of each year assuming no future gains or losses.

- The Amortization Payment of UAL is an increasing payment at 4% paid over 8 years through 2032.

- The Amortization Payment of the Early Retirement Incentive Plan (2002) is an increasing payment at 4% paid over 8 year(s) through 2032.

- The Amortization Payment of the Early Retirement Incentive Plan (2003) is an increasing payment at 4% paid over 8 year(s) through 2032.

- Net 3(8)(c) transfers are a level dollar amount based on the net transfers expected to be paid by the Haverhill Retirement Board during the current year offset by the amount received during the same period.

- Total Employer Cost is the sum of the Employer Normal Cost, net 3(8)(c) transfers and the Amortization of the UAL, all computed as of January 1 of each year and adjusted for annual payments made on July 1.

- For fiscal year 2025, we show the actual appropriation developed under the previous funding schedule of $25,078,951. For fiscal years 2026 and later, the Board has selected a funding schedule that fully amortizes the unfunded actuarial accrued liability by 2032.

- The funding schedule adopted by the Board results in amortization payments for every year up to and including the full funded date that are greater than the interest computed on the outstanding UAL from the prior year. This amortization method fully amortizes the UAL within a reasonable time period and reduces the UAL by a reasonable amount within a sufficiently short period.

Exhibit 3.2:

- Expected benefit payments include payments expected to be made to retired members, beneficiaries, disabled members and active members expected to retire. In addition, expected benefit payments include distribution of the annuity savings fund attributed to inactive members.

- Benefit payments exclude cost-of-living increases granted to members in pay status between 1982 and 1997. In addition, benefit payments are as expected for the first ten years of the forecast, then increase by the greater of 4.5% per year thereafter or the expected future payments for the current population projected by our computer model.

- Calendar year cash flow entries are developed as of each January 1.

SECTION 4 - DISCLOSURES

4.1 - GASB 67 and GASB 68 Disclosures

In June 2012, the GASB approved two related Statements that significantly changed the way pension plans and governments account and report pension liabilities. Effective for plans with fiscal years beginning after June 15, 2013, GASB Statement No. 67, *Financial Reporting for Pension Plans* , replaced the requirements of Statement No. 25 and effective for employers with fiscal years beginning after June 15, 2014, GASB Statement No. 68, *Accounting and Financial Reporting for Pensions* , replaced the requirements of Statement No. 27.

The pension standards reflect changes from those previously in place regarding how governments calculate total pension liability and pension expense. Further, the standards contain requirements for disclosing information in the notes to financial statements and presenting required supplementary information following the notes.

GASB 67 requires defined benefit pension plans, such as the Haverhill Retirement System, to present a statement of fiduciary net position (pension plan assets) and a statement of changes in fiduciary net position. Further, the statement requires that notes to financial statements include descriptive information such as the types of benefits provided, the classes of plan members covered and the composition of the pension plan's retirement board. Finally, GASB 67 requires pension plans to present in required supplementary information the sources of the changes in the net pension liability and information about the actuarially determined contributions compared with the actual contributions made to the plan and related ratios.

GASB 67 and GASB 68 require projected benefit payments be discounted to their actuarial present value using the single rate that reflects:

(1) a long-term expected rate of return on pension plan investments *to the extent that the pension plan's assets are sufficient to pay benefits and pension plan assets are expected to be invested using a strategy to achieve that return and*

(2) a tax-exempt, high-quality municipal bond rate *to the extent that the conditions for use of the long-term expected rate of return are not met.*

GASB 68 establishes standards for measuring and recognizing liabilities, deferred outflows of resources, deferred inflows of resources and pension expense by state and local governments.

The effective date for GASB 67 is for plan years beginning after June 15, 2013, which is the fiscal year ending December 31, 2014 for the Haverhill Retirement System. The effective date for GASB 68 is for employers' fiscal years beginning after June 15, 2014. The GASB report, submitted under separate cover and prepared as of December 31, 2023 (the measurement date), presents information to assist the Haverhill Retirement Board in providing the required information under GASB 68 to participating employers.

4.2 - PERAC Disclosure Information

The most recent actuarial valuation of the System was prepared by KMS Actuaries, LLC as of January 1, 2024.

Normal Cost - Employees	$5,543,867	9.3% of payroll
Normal Cost - Employers	$4,725,769	8.0% of payroll
Actuarial Liability - Active Members	$138,494,527	32% of total AAL
Actuarial Liability - Retired and Inactive Members	293,847,608	68% of total AAL
Total Actuarial Liability (AAL)	$432,342,135	
System Assets	$299,876,129	
Unfunded Actuarial Accrued Liability	$132,466,006	
Funded Status	69.4%	

Principal actuarial assumptions used in the valuation:

Investment Return	7.00%
Rate of Salary Increase	Based on service, 6% graded down to 4.25% for Group 1
	Based on service, 7% graded down to 4.75% for Group 4

4.3 - Risk Measures

The Haverhill Retirement System is subject to certain risks that could affect the plan's future financial condition. Here we identify the primary risks to the System, provide some background information about those risks, and provide an assessment of those risks in accordance with Actuarial Standards of Practice (ASOP) 51.

Risk is the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience. Examples of potential risks that may be reasonably anticipated to significantly affect the future financial condition of the plan include the following:

- **Investment Risk** - the potential that investment returns will be different than expected.
- **Asset/Liability Mismatch Risk** - the potential that changes in asset values are not matched by changes in the value of liabilities.
- **Interest Rate Risk** - the potential that interest rates will be different than expected.
- **Longevity and Other Demographic Risks** - the potential that mortality or other demographic experience will be different than expected.
- **Contribution Risk** - the potential of actual future contributions deviating from expected future contributions. For example, that actual contributions are not made in accordance with the plan's funding policy, that other anticipated payments to the plan are not made, or that material changes occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base.
- **Benefit Change Risk** - the potential for the provisions of the System to be changed such that the benefits and liabilities are changed materially.
- **Assumption Change Risk** - the potential for the environment to change such that future valuation assumptions are adjusted to be different than the current assumptions.

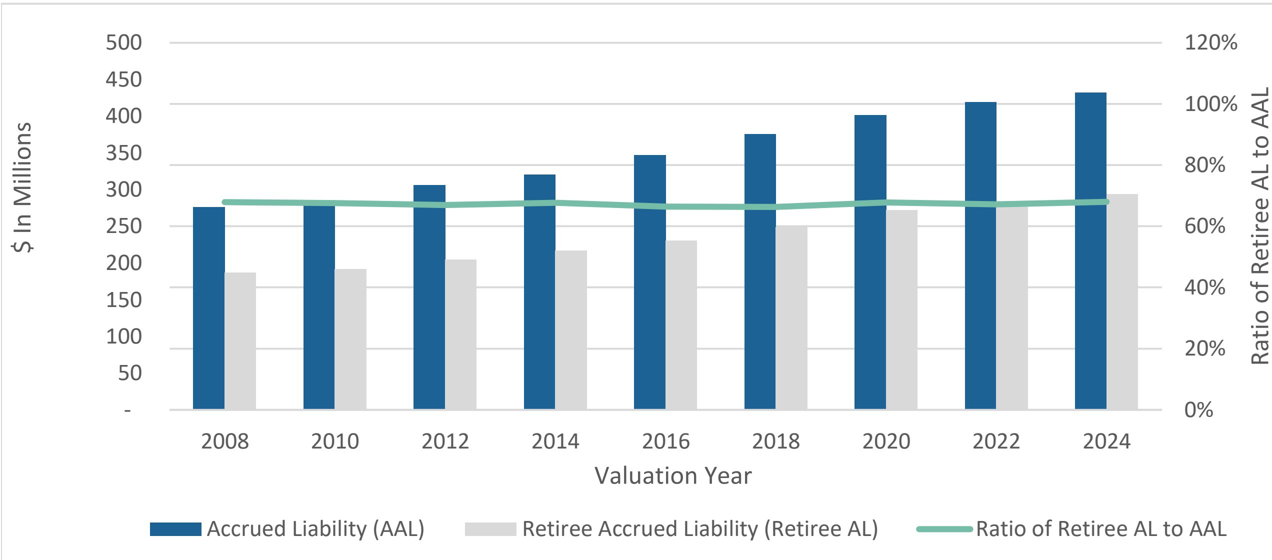
We have provided several risk measures in this section that we believe are most significant for the plan. However, we believe that a more rigorous assessment of risk would be beneficial to the Board to understand the risks identified above, such as:

- Scenario Test - a process for assessing the impact of one possible event, or several simultaneous or sequentially occurring possible events, on a plan's financial condition.
- Sensitivity Test - a process for assessing the impact of a change in an actuarial assumption on an actuarial measurement.
- Stochastic Modeling - a process for generating numerous potential outcomes by allowing for random variations in one or more inputs over time for the purpose of assessing the distribution of those outcomes.
- Stress Test - a process for assessing the impact of adverse changes in one or relatively few factors affecting a plan's financial condition.

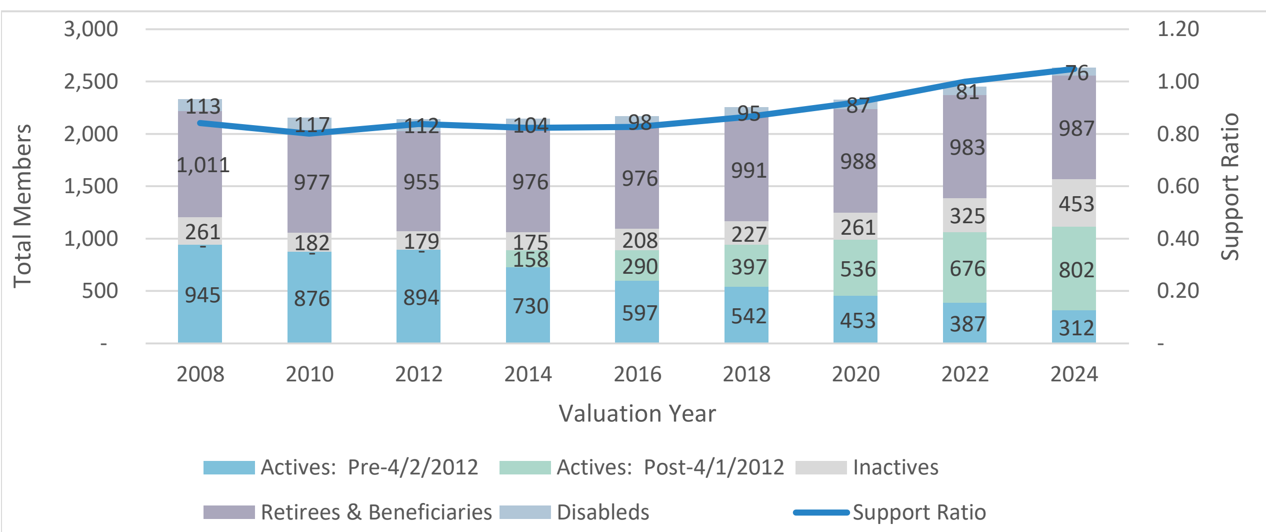
4.3 - Risk Measures

Maturity Measures

As retirement systems mature they become much more sensitive to risks. This is because a higher proportion of the actuarial liability is attributable to participants who are no longer active. Plan maturity measures are helpful in understanding the risks associated with a plan. One such maturity measure is the ratio of the system's retiree liability to its total liabiity. A retirement system in its infancy will have a very low ratio of retiree liability to total liability. As the system matures, the ratio starts increasing. A mature plan will often have a ratio above 60%. For the Haverhill Retirement System, this ratio has remained steady in recent years.



Another maturity measure is the ratio of actives to retirees, or support ratio. A retirement system in its infancy will have a very high ratio of active to retired members. As the system matures, and members retire, the support ratio starts declining. A mature system will often have a support ratio near or below one.



4.3 - Risk Measures

Volatility Indices

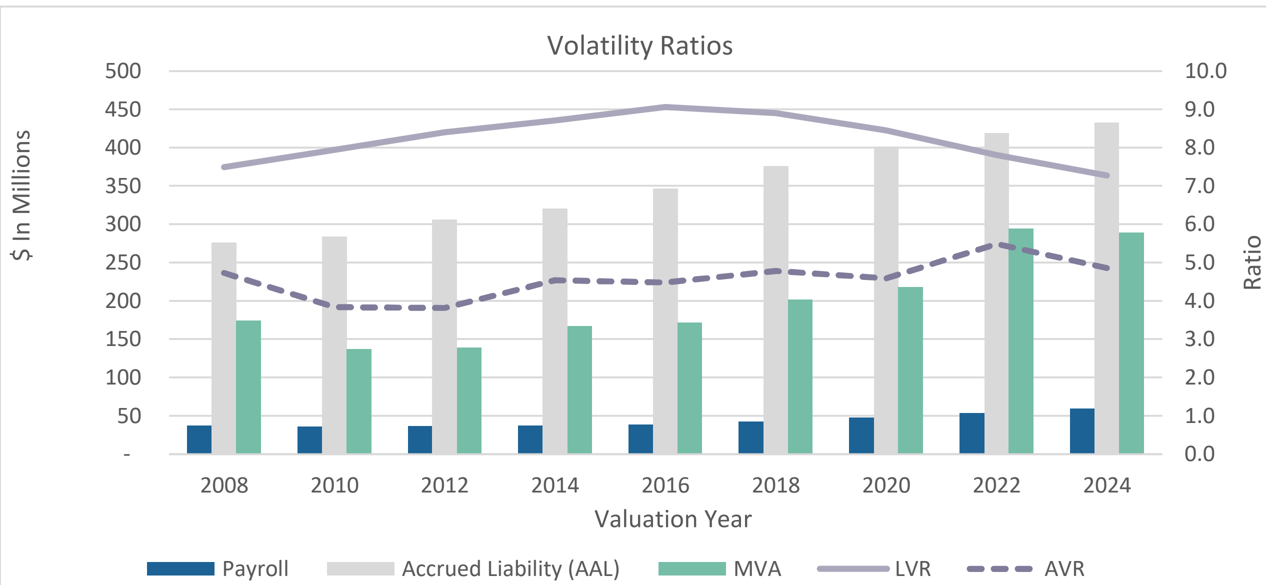
Volatility indices are measures of the relative sensitivity of employer contributions to changes in assets or liabilities. Below we present two such indices - the Asset Volatility Ratio (AVR) and the Liability Volatility Ratio (LVR):

Asset Volatility Ratio (AVR)

The Asset Volatility Ratio (AVR) is the ratio of the Market Value of Assets (MVA) to Payroll. Systems with a higher AVR experience more volatile employer contributions (as a percentage of payroll) due to investment return. This ratio indicates a measure of the system's current contribution volatility. The AVR increases over time but generally tends to stabilize as the system matures.

Liability Volatility Ratio (LVR)

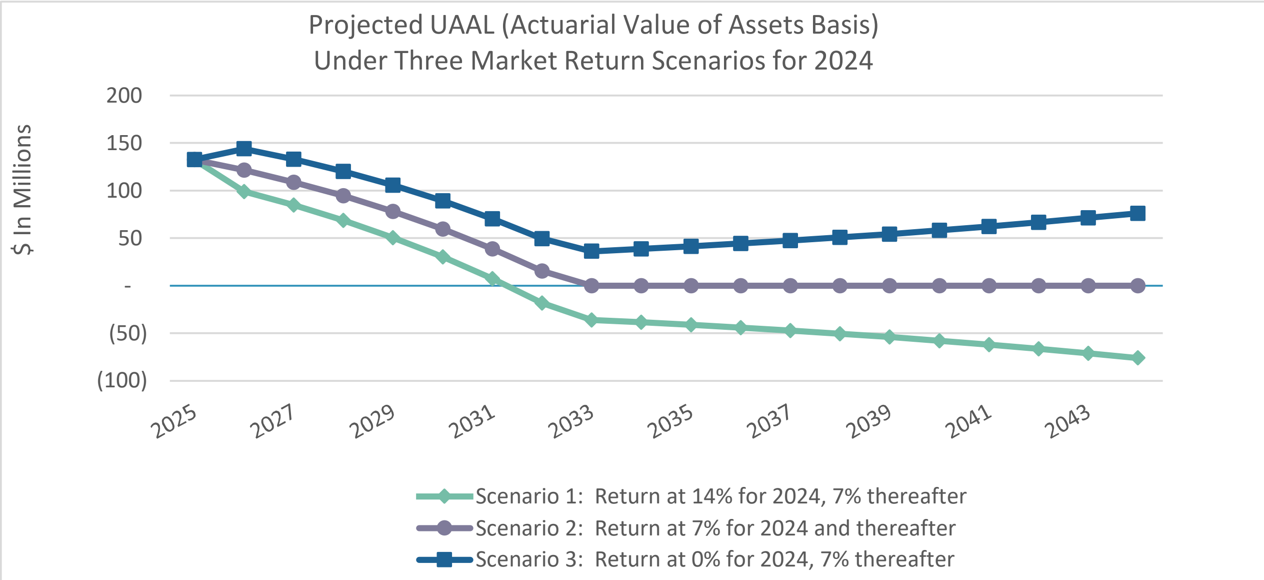
The Liability Volatility Ratio (LVR) is the ratio of the Actuarial Accrued Liability (AAL) to Payroll. Systems with a higher LVR experience more volatile employer contributions (as a percentage of payroll) due to the investment return assumption and changes in liability. This ratio indicates a longer-term potential for contribution volatility. The AVR, described above, will tend to move close to the LVR as the system matures.



4.3 - Risk Measures

Market Return Scenarios

Below we illustrate the projected effect on funding levels of a single year of investment return above or below the assumed investment return. Scenario 1 assumes a one-year return of 2 times the assumed return and the expected return thereafter, Scenario 2 assumes assets earn the expected return every year and Scenario 3 assumes a one-year return of 0% and the expected return thereafter.



Sensitivity Analysis

The following presents the Actuarial Accrued Liability and Funded Status calculated using the investment return rate of 7%, as well as what the Actuarial Accrued Liability and Funded Status would be if it were calculated using an investment return rate 1-percentage point lower (6%) or 1-percentage point higher (8%) than the assumed investment return rate:

	1% Decrease (6.0%)	Current Investment Return Rate (7.0%)	1% Increase (8.0%)
Actuarial Accrued Liability	$478,303,665	$432,342,135	$393,391,055
% Change	11%		-9%
Actuarial Value of Assets	$299,876,129	$299,876,129	$299,876,129
Unfunded Actuarial Accrued Liability	178,427,536	132,466,006	93,514,926
% Change	35%	N/A	-29%
Funded Status	62.7%	69.4%	76.2%

4.3 - Risk Measures

The retirement plan invests in a diversified portfolio of stocks, bonds, real estate, and other assets with the objective of maximizing investment returns at a reasonable level of risk. The potential for investment returns to be different than expected is a key risk for the plan. Reducing the plan's investment risk by investing solely in bonds, however, would also likely reduce the plan's investment returns thereby increasing the amount of contributions needed over the long term. The Low-Default Risk Obligation Measure (LDROM) represents what the funding liability would be if the plan invested its assets solely in a portfolio of high-quality bonds whose cash flows approximately match future benefit payments. Consequently, the difference between the plan's Actuarial Accrued Liability and the LDROM can be thought of as representing the expected taxpayer savings from investing in the plan's diversified portfolio compared to investing only in high quality bonds.

The following presents the LDROM and Funded Status calculated using the LDROM investment return rate of 4.76%:

LDROM	$547,579,421
Actuarial Value of Assets	$299,876,129
Funded Status	54.76%

The LDROM investment return rate is based on the FTSE Pension Liability Index published as of December 31, 2023. The index represents the single discount rate that would produce the same present value as calculated by discounting a standardized set of liabilities using the Pension Discount Curve, which is a set of yields on hypothetical AA zero coupon bonds whose maturities range from 6 months up to 30 years.

The actuarial valuation reports the funded status and develops appropriations based on the expected return of the plan's investment portfolio. If instead, the plan switched to investing exclusively in high quality bonds, the LDROM illustrates that reported funded status would be lower (which also implies that the Actuarially Determined Contributions would be higher), perhaps significantly. Unnecessarily high appropriation requirements in the near term may not be affordable and could imperil plan sustainability and benefit security.

4.3 - Risk Measures

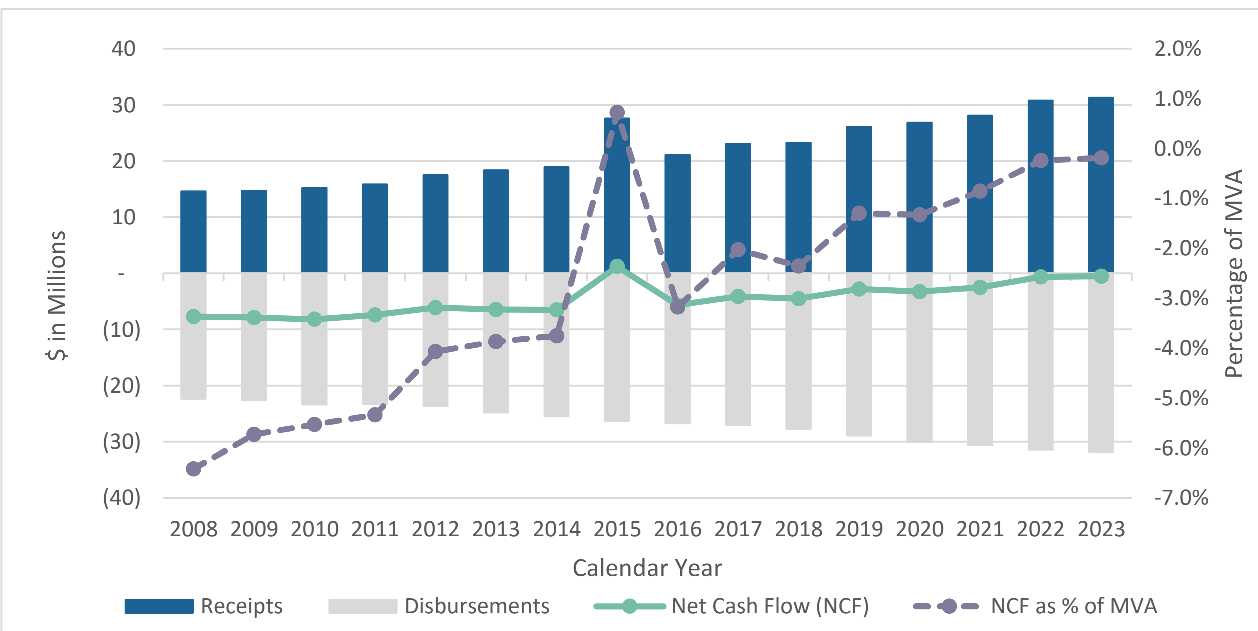
Duration

Duration is another measure that is used to describe how the present value of a cash flow series changes when small changes are made to the underlying interest rates. The duration of the Haverhill Retirement System is 10, and this represents an approximate percentage change in the Actuarial Accrued Liability for each 1% change to the investment return rate.

Net Cash Flow (NCF)

Net cash flow (NCF) during a year is the difference between contributions, both employer and employee, paid into the System and benefit payments and expenses paid from the System. If the level of benefit payments plus expenses is greater than contributions, then the System has negative NCF. Mature plans generally have a negative NCF as the number of retirees grows. When a System has negative NCF, then additional cash from existing assets are needed to pay the pension benefits.

Historical NCF since 2008 is shown in the next graph. Blue bars indicate contributions, from employees and employers, and grey bars show benefit payments and administrative expenses. The NCF is represented by the green line. The dashed purple line (which corresponds to the right-hand axis) provides the NCF as a percentage of the Market Value of Assets. As of December 31, 2023, the NCF was negative $.5 million, which represents -0.2% of the Market Value of Assets. The NCF falls within the range of -6.4% to 0.7% of total assets over the 16-year period.



SECTION 5 - SUMMARY OF PLAN PROVISIONS

Administration	There are 104 contributory retirement systems for public employees in Massachusetts. Each system is governed by a retirement board and all boards, although operating independently, are governed by Chapter 32 of the Massachusetts General Laws and other applicable statutes. This law in general provides uniform benefits, uniform contribution requirements and a uniform accounting and funds structure for all systems.
Participation	Participation is mandatory for all full-time employees. Eligibility with respect to part-time, provisional, temporary, seasonal or intermittent employment is governed by regulations promulgated by the local retirement board, and approved by PERAC. Membership is optional for certain elected officials.
Membership Groups	There are four membership groups in the Retirement System:

Group 1	General employees, including clerical, administrative, technical and all other employees not otherwise classified.
Group 2	Certain specified hazardous duty positions.
Group 3	State police officers and inspectors.
Group 4	Local police officers, firefighters and other specified hazardous positions.

For members in more than one group, participation will be proportional.

Member Contributions

Member contributions vary depending on the most recent date of membership:

Prior to 1975	5% of Salary
1975 – 1983	7% of Salary
1984 – June 30, 1996	8% of Salary
July 1, 1996 – present	9% of Salary
1979 – present	An additional 2% of Salary in excess of $30,000.
Group 1 members hired on or after April 2, 2012	6% of Salary with 30 or more years of creditable service.

Rate of Interest	Interest on regular deductions made after January 1, 1984 is a rate established by PERAC in consultation with the Commissioner of Banks. The rate is obtained from the average rates paid on individual savings accounts by a representative sample of at least ten financial institutions.

Retirement Age

The mandatory retirement age for some Group 2 and Group 4 members is age 65. Most Group 2 and Group 4 members may remain in service after reaching age 65. Group 4 members who are employed in certain public safety positions are required to retire at age 65. There is no mandatory retirement age for members in Group 1.

Salary

Gross regular compensation. This does not include bonuses, overtime, severance pay, unused sick leave credit or other similar compensation. For employees who became members after January 1, 2011, regular compensation is limited to 64% of the federal limit found in 26 U.S.C. §401(a)(17). For 2024, the limit is 64% of $345,000, or $220,800.

Average Salary

Membership before April 2, 2012

- Average annual rate of regular compensation received during the three consecutive years that produce the highest average, or, if greater, during the last three years (whether or not consecutive) preceding retirement.

Membership on or after April 2, 2012

- Average annual rate of regular compensation received during the five consecutive years that produce the highest average, or, if greater, during the last five years (whether or not consecutive) preceding retirement.

Creditable Service

The period during which a member contributes to the retirement system plus certain periods of military service and "purchased" service.

Benefit Rate

The benefit rate varies with the member's retirement age, Group, membership date and years of creditable service at retirement. Each year a member retires prior to the age at which the 2.5% maximum benefit rate applies, a reduction is applied to each year of age under the maximum age. The maximum age and reduction for each Group and membership date is as follows:

	Group 1	Group 2	Group 4
2.5% for Membership before April 2, 2012:			
Maximum age:	65	60	55
Reduction:	0.1%	0.1%	0.1%
2.5% for Membership on or after April 2, 2012 (less than 30 years of service):			
Maximum age:	67	62	57
Reduction:	0.15%	0.15%	0.15%
2.5% for Membership on or after April 2, 2012 (30+ years of service):			
Maximum age:	67	62	57
Reduction:	0.125%	0.125%	0.125%

Superannuation Retirement	Eligibility if membership before April 2, 2012	♦ completion of 20 years of Creditable Service, or ♦ attainment of age 55 if hired prior to 1978, or ♦ attainment of age 55 with 10 years of Creditable Service, if hired after 1978.
	Eligibility if membership on or after April 2, 2012	♦ attainment of age 60 with 10 years of Creditable Service if classified in Group 1 ♦ attainment of age 55 with 10 years of Creditable Service if classified in Group 2 ♦ attainment of age 55 if classified in Group 4
	Benefit Amount	Product of the member's Benefit Rate, Average Salary and Creditable Service.
	Maximum Benefit	80% of the member's Average Salary.
	Veteran's Benefit	Additional benefit of $15 per year of Creditable Service, up to a maximum of $300.
Deferred Vested	Eligibility	♦ completion of ten or more years of Creditable Service. ♦ elected officials hired prior to 1978, completion of six years of Creditable Service.
	Benefit Amount	Accrued benefit payable commencing at age 55, or the completion of 20 years of Creditable Service, or may be deferred until later at the participant's option.
Withdrawal of Contributions		Contributions may be withdrawn upon termination of employment. ♦ Members hired on or after January 1, 1984 who terminate with less than ten years of Creditable Service receive contributions plus interest on the Annuity Savings Account at an annual rate of 3%. ♦ All other withdrawals receive contributions plus 100% of the regular interest that has accrued to the Annuity Savings Account.

Ordinary Disability Retirement	Eligibility	Non-job related disability after completion of ten years of Creditable Service.
	Benefit Amount for Group 1 membership before April 2, 2012 or Group 2 or Group 4	Superannuation benefit determined if the member is age 55, up to a maximum of 80% of Average Salary over three years. If the member is a veteran, 50% of final rate of salary (final year) plus an annuity based on the accumulated member contributions plus credited interest, up to a maximum of 80% of Average Salary over five years.
	Benefit Amount for Group 1 membership on or after April 2, 2012	Superannuation benefit determined if the member is age 60, up to a maximum of 80% of Average Salary over three years. If the member is a veteran, 50% of final rate of salary (final year) plus an annuity based on the accumulated member contributions plus credited interest, up to a maximum of 80% of Average Salary over five years.
Accidental Disability Retirement	Eligibility	Disabled as a result of an accident in the performance of duties. There is no minimum age or service requirement.
	Benefit Amount	72% of Salary plus an annuity based on accumulated member contributions plus credited interest.
	Maximum Benefit	100% of Salary if hired before January 1, 1988, otherwise 75% of Salary.
	Veteran's Benefit	Additional allowance of $15 per year of Creditable Service, up to a maximum of $300.
	Supplemental Dependent Allowance	Additional allowance of $1,092.60 per year for each child until age 18 (or age 22 if a full-time student).
Non-Occupational Death	Eligibility	For members with at least two years of creditable service who die while in active service, but not due to occupational injury.
	Benefit Amount	Benefit as if Option C had been elected. Minimum benefit of $250 per month for surviving spouse, $120 per month for first child and $90 per month for each additional child.

Accidental Death	Eligibility	For members who die as a result of an occupational injury.
	Benefit Amount	72% of Salary plus an annuity based on accumulated member contributions plus credited interest.
	Maximum Benefit	100% of Salary if hired before January 1, 1988, otherwise 75% of Salary.
	Veteran's Benefit	Additional allowance of $15 per year of creditable service, up to a maximum of $300.
	Supplemental Dependent Allowance	Additional allowance of $1,092.60 per year for each child until age 18 (or age 22 if a full-time student).

Cost-of-Living Adjustment (COLA)

In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a Cost-of-Living Adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees and beneficiaries who have been receiving benefit payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is $13,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the Commonwealth of Massachusetts and are not the liability of the Retirement System.

Optional Forms of Payment

A member may elect to receive his or her retirement allowance, payable in monthly installments, in one of three forms of payment:

♦ Option A – Total annual allowance commencing at retirement and terminating at member's death.

♦ Option B – A reduced annual allowance commencing at retirement with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member.

♦ Option C – A reduced annual allowance commencing at retirement with 66⅔% of benefit continued to designated beneficiary upon death of member. For members who retired on or after January 12, 1988, if the beneficiary pre-deceases the retiree, the benefit payable increases based on the factor used to determine the Option C benefit at retirement. For members who retired prior to January 12, 1988, if the System has accepted Section 288 of Chapter 194 of the Acts of 1998 and the beneficiary pre-deceases the retiree, the benefit payable increases based on the factor used to determine the Option C benefit at retirement.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Valuation Date	January 1, 2024
Investment Return Rate	7.00% per year. The investment return assumption is a long-term assumption based on capital market expectations by asset class, historical returns and professional judgment. We considered analysis prepared by PRIM's investment advisor using a building block approach and using the target asset allocation, expected returns by asset class and risk analysis to determine a long-term expected average annual rate of return.
Low-Default Risk Obligation Measure (LDROM) Investment Return Rate	4.76% per year. The LDROM investment return rate is based on the FTSE Pension Liability Index published as of December 31, 2023. The index represents the single discount rate that would produce the same present value as calculated by discounting a standardized set of liabilities using the Pension Discount Curve, which is a set of yields on hypothetical AA zero coupon bonds whose maturities range from 6 months up to 30 years.
Annuity Savings Fund Interest Rate	2.00% per year
Amortization Method	*Unfunded Actuarial Accrued Liability (UAL):* Increasing dollar amount at 4% to reduce the Unfunded Actuarial Accrued Liability to zero on or before June 30, 2032. *Early Retirement Incentive Program (ERI) for 2002:* Increasing dollar amount at 4% to reduce the Unfunded Actuarial Accrued Liability attributable to the 2002 ERI to zero on or before June 30, 2032. *Early Retirement Incentive Programs (ERI) for 2003:* Increasing dollar amount at 4% to reduce the Unfunded Actuarial Accrued Liability attributable to the 2003 ERI to zero on or before June 30, 2032.
Output Smoothing Method	None.

Salary Scale

The assumed annual rates for salary increases including longevity are illustrated by the following rates:

Years of Service	Groups 1 and 2	Group 4
0	6.00%	7.00%
1	5.50%	6.50%
2	5.50%	6.00%
3	5.25%	5.75%
4	5.25%	5.25%
5	4.75%	5.25%
6	4.75%	4.75%
7	4.50%	4.75%
8	4.50%	4.75%
9+	4.25%	4.75%

The salary scale assumption is a long-term estimate derived from historical data, current and recent market expectations and professional judgment.

Cost-of-Living Allowance

Cost-of-Living Allowances (COLA) are assumed to be 3% of the pension amount, capped at $390 per year.

Inflation

2.5% per year, based on current economic data, analyses from economists and other experts, and professional judgment.

Payroll Growth

3.5% per year, based on historical data, current and recent market expectations and professional judgment.

Mortality Rates

RP-2014 Blue Collar Mortality Table with full generational mortality improvement using Scale MP-2018. For disabled members, RP-2014 Blue Collar Mortality Table set forward one year with full generational mortality improvement using Scale MP-2018.

General Employees: 55% of deaths are job-related.
Police and Fire : 90% of deaths are job-related.

PERAC completed a local system retiree mortality study in 2019 and selected the RP-2014 Blue Collar Mortality Table with full generational mortality improvement using Scale MP-2018 and subsequently updated the mortality improvement scale to MP-2020 in 2022. The underlying tables with generational mortality improvement selected reasonably reflect the mortality experience of the System as of the valuation date based on historical and current demographic data as well as professional judgement.

Turnover Rates

Illustrative turnover rates are shown below:

Creditable Service	Groups 1 and 2	Group 4
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

Disability Rates

Illustrative disability rates are shown below:

Attained Age	Groups 1 and 2	Group 4
20	0.0001	0.0010
30	0.0003	0.0030
40	0.0010	0.0030
50	0.0019	0.0125
60	0.0028	0.0085

General Employees: 55% of disabilities are accidental and 45% are ordinary.

Police and Fire : 90% of disabilities are accidental and 10% are ordinary.

Retirement Rates

Illustrative retirement rates are shown below:

Attained Age	Groups 1 and 2		Group 4
	Male	Female	Male & Female
50	0.0100	0.0150	0.0200
51	0.0100	0.0150	0.0200
52	0.0100	0.0200	0.0200
53	0.0100	0.0250	0.0500
54	0.0200	0.0250	0.0750
55	0.0200	0.0550	0.1500
56	0.0250	0.0650	0.1000
57	0.0250	0.0650	0.1000
58	0.0500	0.0650	0.1000
59	0.0650	0.0650	0.1500
60	0.1200	0.0500	0.2000
61	0.2000	0.1300	0.2000
62	0.3000	0.1500	0.2500
63	0.2500	0.1250	0.2500
64	0.2200	0.1800	0.3000
65	0.4000	0.1500	1.0000
66	0.2500	0.2000	1.0000
67	0.2500	0.2000	1.0000
68	0.3000	0.2500	1.0000
69	0.3000	0.2000	1.0000
70	1.0000	1.0000	1.0000

The turnover, disability and retirement rates are based on PERAC's most recent experience analysis of local retirement systems which reviewed age, gender and job group. The assumptions reflect this analysis as well as professional judgment.

Actuarial Cost Method

Individual Entry Age Normal.

Actuarial Asset Method

The Actuarial Value of Assets is the market value of assets as of the valuation date reduced by the sum of:

a) 75% of gains and losses of the prior year,
b) 50% of gains and losses of the second prior year, and
c) 25% of gains and losses of the third prior year.

Investment gains and losses are determined by the excess or deficiency of the expected return over the actual return on the market value. The actuarial valuation of assets is further constrained to be not less than 80% or more than 120% of market value. Previously, the actuarial valuation of assets corridor was 10%.

Census Data

Census data as of the valuation date were submitted by the Retirement Board.

Asset Data

Asset information is reported annually to the Public Employee Retirement Administration Commission by the Haverhill Retirement Board.

Dependents

80% of all members will be survived by a spouse. Age assumption for spouses is that males are assumed to be three years older than females.

Net Section 3(8)(c) Transfers

Reimbursements paid to and received from other retirement systems for that portion of a retiree's pension that is based on service earned in another retirement system. Net 3(8)(c) transfers are assumed to be $625,000 per year.

Administrative Expenses

For Fiscal Year 2025, the administrative expenses were assumed to be $600,000 and are anticipated to increase 3.5% per year.

The administrative expense assumption is based on information relating to the System's administrative expenses provided by the Retirement Board.

Use of ProVal®

KMS Actuaries has used ProVal® to develop the liabilities, normal costs and projected benefit payments in this report. We have a lease agreement with WinTech, the developer of ProVal®, and have relied on their system to perform these calculations. The actuaries signing this report and the KMS staff members who were involved in preparing it have a clear understanding of ProVal® and have used it only for its intended purpose. We have reviewed the output produced by ProVal® for reasonableness and we are not aware of any material inconsistencies, limitations or known weaknesses that would affect this report.

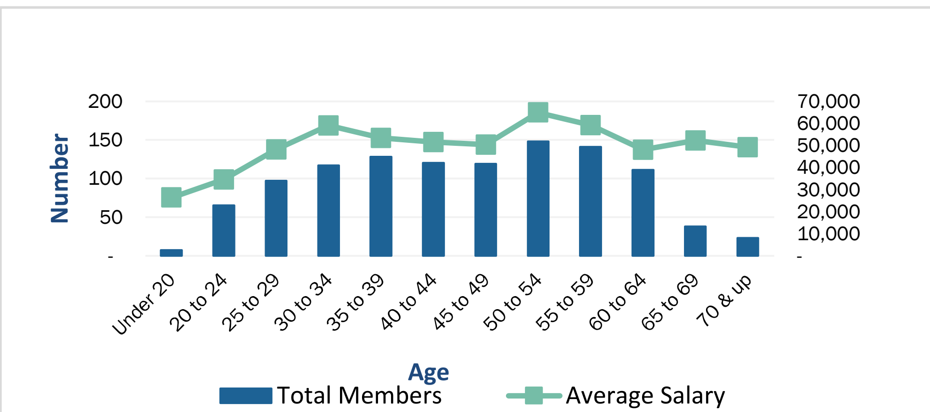
Exhibit 7.1 - Summary of Census Data as of January 1, 2024

Census data as of December 31, 2023 was provided to us by the Retirement Board. We performed edits on the data to ensure that it is reasonable and complete and made certain assumptions regarding any missing or invalid data so that results are not materially affected. Presented on the following pages are summaries of the demographic profile of active members (Exhibit 7.2) and retired plan members and beneficiaries and disabled plan members (Exhibit 7.3). Below, we present a comparison of the census data from the current and prior valuations:

Valuation Date	January 1, 2024	January 1, 2022	% Change
Census Data			
Active Members	1,114	1,063	4.8%
Average Age	45.5	46.2	(1.6%)
Average Service	9.2	10.0	(7.7%)
Valuation Salary	$59,417,121	$53,668,444	10.7%
Average Salary	$53,337	$50,488	5.6%
Retired Members and Beneficiaries	987	983	0.4%
Average Age	74.0	73.8	0.3%
Total Annual Retirement Allowance	$26,155,789	$24,755,706	5.7%
Average Annual Retirement Allowance	$26,500	$25,184	5.2%
State Reimbursed COLAs	$34,081	$37,349	(8.7%)
Total System-Funded Retirement Allowance	$26,121,708	$24,718,357	5.7%
Disabled Members	76	81	(6.2%)
Average Age	70.4	70.9	(0.6%)
Total Annual Retirement Allowance	$2,961,314	$3,077,121	(3.8%)
Average Annual Retirement Allowance	$38,965	$37,989	2.6%
State Reimbursed COLAs	$22,543	$29,263	(23.0%)
Total System-Funded Retirement Allowance	$2,938,771	$3,047,858	(3.6%)
Inactive Members	453	325	39.4%
Annuity Savings Fund	$4,975,898	$3,992,671	24.6%

Exhibit 7.2 - Active Members by Age and Years of Service as of January 1, 2024

	Years of Service											
Attained Age	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total	Total Salary	Average Salary
Under 20	7	-	-	-	-	-	-	-	-	7	184,852	26,407
20 to 24	65	-	-	-	-	-	-	-	-	65	2,243,571	34,516
25 to 29	84	13	-	-	-	-	-	-	-	97	4,666,885	48,112
30 to 34	69	38	10	-	-	-	-	-	-	117	6,909,528	59,056
35 to 39	74	33	19	2	-	-	-	-	-	128	6,835,175	53,400
40 to 44	61	28	10	17	3	1	-	-	-	120	6,185,880	51,549
45 to 49	56	25	10	13	12	3	-	-	-	119	5,983,237	50,279
50 to 54	43	20	22	15	16	24	7	1	-	148	9,613,312	64,955
55 to 59	35	26	19	14	11	20	11	5	-	141	8,343,641	59,175
60 to 64	21	21	18	17	14	11	6	2	1	111	5,333,924	48,053
65 to 69	8	3	8	5	3	6	4	1	-	38	1,985,382	52,247
70 & up	6	1	2	3	-	2	1	2	6	23	1,131,734	49,206
Total	529	208	118	86	59	67	29	11	7	1,114	59,417,121	53,337
Average Salary	41,615	57,121	60,749	60,231	63,285	89,698	71,900	73,069	77,249			
					Average Age:		45.5	Average Service:		9.2		



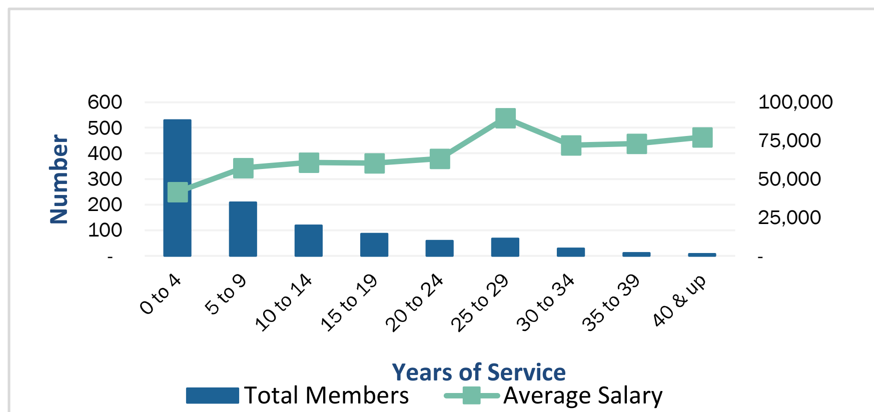
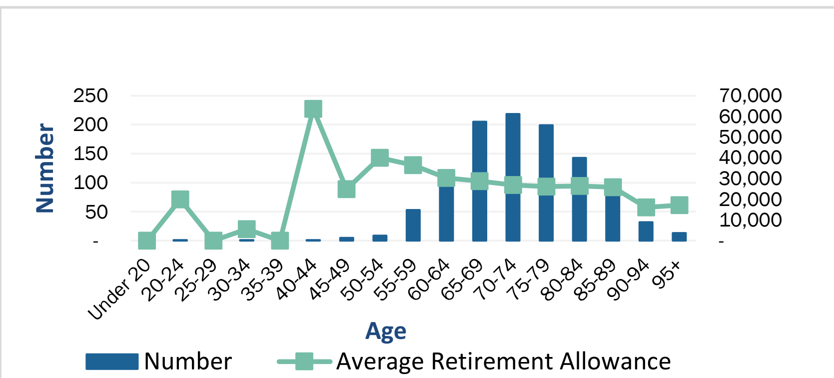
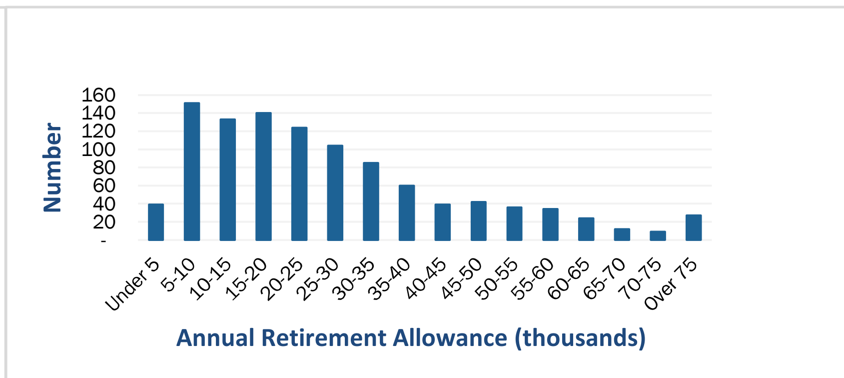


Exhibit 7.3 - Annual Retirement Allowances as of January 1, 2024

Attained Age	Service Retirements			Disability Retirements			Beneficiaries		
	Number	Annual Retirement Allowance	Average Retirement Allowance	Number	Annual Retirement Allowance	Average Retirement Allowance	Number	Annual Retirement Allowance	Average Retirement Allowance
Under 20	0	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	1	19,897	19,897
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	1	5,565	5,565
35-39	0	0	0	0	0	0	0	0	0
40-44	0	0	0	1	63,647	63,647	0	0	0
45-49	1	37,957	37,957	2	73,972	36,986	2	12,376	6,188
50-54	1	48,327	48,327	5	262,019	52,404	3	49,891	16,630
55-59	35	1,202,816	34,366	10	465,211	46,521	8	260,675	32,584
60-64	91	2,721,680	29,909	7	301,903	43,129	3	28,986	9,662
65-69	183	5,195,486	28,391	10	354,468	35,447	12	321,798	26,817
70-74	191	5,176,924	27,104	12	446,106	37,176	15	241,926	16,128
75-79	169	4,444,027	26,296	12	365,010	30,418	18	387,162	21,509
80-84	120	3,100,978	25,841	10	364,981	36,498	13	307,555	23,658
85-89	69	1,754,351	25,425	5	210,888	42,178	8	152,505	19,063
90-94	20	337,743	16,887	2	53,109	26,555	10	124,529	12,453
95+	9	133,843	14,871	0	0	0	4	88,792	22,198
Total	889	24,154,132	27,170	76	2,961,314	38,965	98	2,001,657	20,425
Average Age	73.9			70.4			74.7		





Actuarial Accrued Liability – That portion of the Actuarial Present Value of pension plan benefits which is not provided by future Normal Costs or employee contributions. It is the portion of the Actuarial Present Value attributable to service rendered as of the Valuation Date.

Actuarial Assumptions – Assumptions, based upon past experience or standard tables, used to predict the occurrence of future events affecting the commencement, amount and duration of pension benefits, such as: changes in compensation, mortality, withdrawal, disablement and retirement; rates of investment earnings and asset appreciation or depreciation; and any other relevant items.

Actuarial Cost Method (or Funding Method) – A procedure for allocating the Actuarial Present Value of all past and future pension plan benefits to the current year (Normal Cost) and the past (Actuarial Accrued Liability).

Actuarial Gain or Loss (or Experience Gain or Loss) – A measure of the difference between actual experience and that expected based upon the set of Actuarial Assumptions, during the period between the valuation date and the most recent immediately preceding valuation date.

Actuarial Present Value – The dollar value on the valuation date of all benefits expected to be paid to current members based upon the Actuarial Assumptions and the terms of the Plan.

Actuarial Standard of Practice – Standards set by the Actuarial Standards Board for appropriate actuarial practice in the United States. These Standards describe the procedures an actuary should follow when performing actuarial services and identify what the actuary should disclose when communicating the results of those services.

Actuarial Valuation – The measurement of relevant pension obligations and, when applicable, the determination of periodic costs or actuarially determined contributions.

Amortization Payment – That portion of the pension plan appropriation which represents payments made to pay interest on and the reduction of the Unfunded Accrued Liability.

Annual Statement – The statement submitted by the local retirement board to PERAC each year that describes the asset holdings and Fund balances as of December 31 and the transactions during the calendar year that affected the financial condition of the retirement system.

Annuity Reserve Fund – The fund into which total accumulated Member Contributions, including interest, is transferred at the time a member retires, and from which annuity payments are made.

Annuity Savings Fund – The fund in which Member Contributions plus interest credited are held for active members and for former members who have not withdrawn their contributions and are not yet receiving a benefit (inactive members).

Assets – The total value of the investments held by the Plan trust that are for the payment of promised benefits. Employer appropriations and Member Contributions, as well as investment earnings, are added to the Plan trust. Benefit payments and other disbursements are withdrawn from the Plan trust. For valuation purposes, assets are usually measured at market value.

Cost of Benefits – The estimated payment from the pension system for benefits for the fiscal year.

Expense Fund – The fund into which the appropriation for administrative expenses is paid and from which all such expenses are paid.

Funded Ratio – The Actuarial Value of Assets expressed as a percentage of the Actuarial Accrued Liability.

Funding Schedule – The schedule based upon the most recently approved actuarial valuation which sets forth the amount which would be appropriated to the pension system in accordance with Section 22D and Section 22F of M.G.L. Chapter 32.

GASB – Governmental Accounting Standards Board.

LDROM – Low-Default Risk Obligation Measure.

Normal Cost – Total Normal Cost is that portion of the Actuarial Present Value of pension plan benefits which is expected to accrue in the current fiscal year. The Employee Normal Cost is the amount of the expected Member Contributions for the current fiscal year. The Employer Normal Cost is the difference between the Total Normal Cost and the Employee Normal Cost.

Output Smoothing Method – A method to reduce volatility of the results of a contribution allocation procedure. Output smoothing methods include 1) phasing in the impact of assumption changes on contributions, 2) blending a prior valuation with a subsequent valuation to determine contributions, or 3) placing a corridor around changes in the dollar amount, contribution rate, or percentage change in contributions from year to year.

Pension Fund – The fund into which appropriation amounts as determined by PERAC are paid and from which pension benefits are paid.

Pension Reserve Fund – The fund which shall be credited with all amounts set aside by a system for the purpose of establishing a reserve to meet future pension liabilities. These amounts would include excess interest earnings.

Present Value of Future Benefits – The actuarial present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value of money and the probabilities of payment.

Special Fund for Military Service Credit – The fund which is credited with amounts paid by the retirement board equal to the amount which would have been contributed by a member during a military leave of absence as if the member had remained in active service of the retirement board. In the event of retirement or a non-job related death, such amount is transferred to the Annuity Reserve Fund. In the event of termination prior to retirement or death, such amount shall be transferred to the Pension Fund.

Total Pension Liability – The portion of the Actuarial Present Value attributable to past service in accordance with the Entry Age cost method as stipulated by GASB Statement Number 67 (GASB 67).

Unfunded Actuarial Accrued Liability – The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.

Group	City of Haverhill	Housing Authority	Police & Fire	School	Waste Water	Water	Whittier Tech	Hale Hospital	Total
Summary of Member Data as of January 1, 2024									
Active Members	147	19	225	626	18	27	52	0	1,114
Average Age	48.2	50.7	42.0	45.5	44.4	44.2	51.2	0.0	45.5
Average Service	10.2	8.3	13.6	6.8	13.2	16.1	12.0	0.0	9.2
Salary	9,194,528	1,329,774	18,855,479	24,041,564	1,437,349	1,781,092	2,777,335	0	59,417,121
Average Salary	62,548	69,988	83,802	38,405	79,853	65,966	53,410	0	53,337
Retired Members and Beneficiaries	187	12	170	282	27	21	48	240	987
Annual Pensions	5,051,682	396,922	8,545,305	4,324,700	1,157,277	775,655	933,716	4,970,531	26,155,789
Average Age	75.6	74.8	72.0	73.7	73.0	67.9	75.0	74.9	74.0
Disabled Members	6	0	42	9	0	5	4	10	76
Annual Pensions	167,737	0	2,100,248	222,914	0	146,191	94,673	229,550	2,961,314
Average Age	74.6	0.0	69.7	65.5	0.0	73.7	67.6	75.1	70.4
Inactive Members	41	4	19	352	3	7	19	8	453
Annuity Savings Fund	558,089	150,220	421,289	2,711,537	99,850	283,165	463,265	288,483	4,975,898
Normal Cost as of January 1, 2024									
1.1 Total Normal Cost	1,265,661	198,400	3,897,548	3,589,327	170,585	175,681	392,392	0	9,689,594
1.2 Employee Normal Cost	822,541	130,389	1,844,250	2,205,957	138,311	147,485	254,935	0	5,543,867
1.3 Administrative Expenses	75,765	11,877	233,315	214,866	10,212	10,517	23,490	0	580,042
1.4 Net Employer Normal Cost = 1.1 - 1.2 + 1.3	518,885	79,888	2,286,613	1,598,236	42,486	38,713	160,947	0	4,725,769
Actuarial Accrued Liability as of January 1, 2024									
2.1 Active Employees	19,736,320	2,021,024	62,936,728	36,187,529	4,100,566	5,973,543	7,538,817	0	138,494,527
2.2 Retired Members and Survivors	48,327,682	3,957,565	85,345,291	44,413,771	11,656,262	8,010,605	9,283,348	46,804,933	257,799,457
2.3 Disabled Members	1,680,270	0	21,859,397	2,649,143	0	1,435,452	1,163,832	2,284,159	31,072,253
2.4 Inactive Members	558,089	150,220	421,289	2,711,537	99,850	283,165	463,265	288,483	4,975,898
2.5 Total = 2.1 + 2.2 + 2.3 + 2.4	70,302,361	6,128,809	170,562,705	85,961,980	15,856,678	15,702,765	18,449,262	49,377,575	432,342,135
Actuarial Value of Plan Assets as of January 1, 2024									
3.1 Actuarial Value of Assets	48,762,307	4,250,993	118,303,722	59,623,950	10,998,325	10,891,569	12,796,563	34,248,700	299,876,129

Group	City of Haverhill	Housing Authority	Police & Fire	School	Waste Water	Water	Whittier Tech	Hale Hospital	Total
Unfunded Actuarial Accrued Liability (UAAL) as of January 1, 2024									
4.1 UAL = 2.5 - 3.1	21,540,054	1,877,816	52,258,983	26,338,030	4,858,353	4,811,196	5,652,699	15,128,875	132,466,006
4.2 UAL ERI 2002	1,894,279	43,829	725,074	577,204	164,134	204,511	33,263	0	3,642,294
4.3 UAL ERI 2003	651,286	0	901,059	541,900	444,320	163,685	17,049	0	2,719,299
4.4 UAL non-ERI	18,994,489	1,833,987	50,632,850	25,218,926	4,249,899	4,443,000	5,602,387	15,128,875	126,104,413
FY2025 Appropriation									
5.1 Employer Normal Cost, July 1	536,739	82,637	2,365,291	1,653,228	43,948	40,045	166,485	0	4,888,373
5.2 Amortization Payment of ERI 2002	269,992	6,247	103,345	82,269	23,394	29,149	4,741	0	519,137
5.3 Amortization Payment of ERI 2003	92,828	0	128,428	77,237	63,329	23,330	2,430	0	387,582
5.4 Amortization Payment of UAL*	2,818,924	262,969	7,589,176	3,381,173	656,905	669,717	821,452	2,458,543	18,658,859
5.5 Net 3(8)(c) Transfers	112,035	8,520	228,508	97,615	24,841	19,787	22,074	111,620	625,000
5.6 Total = 5.1 + 5.2 + 5.3 + 5.4 + 5.5	**3,830,518**	**360,373**	**10,414,748**	**5,291,522**	**812,417**	**782,028**	**1,017,182**	**2,570,163**	**25,078,951**
FY2026 Appropriation									
6.1 Employer Normal Cost, July 1	539,773	83,104	2,378,661	1,662,573	44,196	40,271	167,426	0	4,916,004
6.2 Amortization Payment of ERI 2002	280,791	6,497	107,478	85,560	24,330	30,315	4,931	0	539,902
6.3 Amortization Payment of ERI 2003	96,542	0	133,566	80,326	65,862	24,263	2,527	0	403,086
6.4 Amortization Payment of UAL**	2,942,893	285,822	7,831,130	3,973,040	653,690	686,490	869,817	2,305,170	19,548,052
6.5 Net 3(8)(c) Transfers	112,035	8,520	228,508	97,615	24,841	19,787	22,074	111,620	625,000
6.6 Total = 6.1 + 6.2 + 6.3 + 6.4 + 6.5	**3,972,034**	**383,943**	**10,679,343**	**5,899,114**	**812,919**	**801,126**	**1,066,775**	**2,416,790**	**26,032,044**
Increase over prior year	3.69%	6.54%	2.54%	11.48%	0.06%	2.44%	4.88%	-5.97%	3.80%
FY2027 Appropriation									
7.1 Employer Normal Cost, July 1	556,033	85,607	2,450,318	1,712,658	45,527	41,484	172,470	0	5,064,097
7.2 Amortization Payment of ERI 2002	292,023	6,757	111,777	88,982	25,303	31,528	5,128	0	561,498
7.3 Amortization Payment of ERI 2003	100,404	0	138,908	83,539	68,496	25,234	2,628	0	419,209
7.4 Amortization Payment of UAL	3,064,012	297,585	8,153,431	4,136,556	680,594	714,743	905,616	2,400,042	20,352,579
7.5 Net 3(8)(c) Transfers	112,035	8,520	228,508	97,615	24,841	19,787	22,074	111,620	625,000
7.6 Total = 7.1 + 7.2 + 7.3 + 7.4 + 7.5	**4,124,507**	**398,469**	**11,082,942**	**6,119,350**	**844,761**	**832,776**	**1,107,916**	**2,511,662**	**27,022,383**
Increase over prior year	3.84%	3.78%	3.78%	3.73%	3.92%	3.95%	3.86%	3.93%	3.80%

Notes:

1. FY2026 and FY2027 Appropriation is based on Funding Schedule A-2-B.

2. 2025 Employer Normal Cost (5.1) is the Employer Normal Cost as of January 1, 2024 (1.4), adjusted for payment timing. 2026 Employer Normal Cost (6.1) is based on 2024 Employer Normal Cost (5.1) increased by 3.5%.

*3. Amortization Payment of UAL (5.4) equals fiscal year 2025 budgeted appropriation (5.6) developed in the January 1, 2022 actuarial valuation less Employer Normal Cost (5.1), amortization payment to ERI (5.2 and 5.3) and Net 3(8)(c) transfers (5.5).

**4. Amortization Payment of UAL (6.4) is the total Amortization Payment of UAL (6.4) allocated to each department in the proportion that the UAL (4.1) less 2025 Amortization Payment of UAL (5.4) bears to the total UAL (4.1) less total Amortization Payment of UAL (6.4).